

X-RAY STORAGE RING PARAMETERS AS OF DECEMBER 2003

Normal Operating Energies	2.800 GeV					
Maximum Operating Current	280 mA					
Lifetime	~20 hours					
Circumference	170.1 meters					
Number of Beam Ports on Dipoles	30					
Number of Insertion Devices	6					
Maximum Length of Insertion Devices	< 4.50 meters					
$\lambda_c(E_c)$ at 1.36 T	1.75 Å (7.1 keV)					
$\lambda_c(E_c)$ at 5.0 T (W)	0.48 Å (26.1 keV)					
B(ρ)	1.36 Tesla (6.875 meters)					
Electron Orbital Period	567.2 nanoseconds					
Damping Times	$\tau_x = \tau_y = 4$ msec; $\tau_e = 2$ msec					
Lattice Structure (Chasman-Green)	Separated Function, Quad Triplets					
Number of Superperiods	8					
Magnet Complement	<table border="0"> <tr> <td>{</td> <td>16 Bending (2.7 meters each)</td> </tr> <tr> <td>40 Quadrupole (0.45 meters each)</td> </tr> <tr> <td>16 Quadrupole (0.80 meters each)</td> </tr> <tr> <td>32 Sextupole (0.20 meters each)</td> </tr> </table>	{	16 Bending (2.7 meters each)	40 Quadrupole (0.45 meters each)	16 Quadrupole (0.80 meters each)	32 Sextupole (0.20 meters each)
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Nominal Tunes (v_x, v_y)	9.8, 5.7					
Momentum Compaction	4.10^{-3}					
RF Frequency	52.88 MHz					
Radiated Power for Bending Magnets	198 kW (0.25A)					
RF Peak Voltage	1120 kV					
Design RF Power	450 kW					
Synchrotron Tune (v_s)	0.0023					
Natural Energy Spread (σ_e/E)	9.2×10^{-4}					
Natural Bunch Length (2σ)	8.7 cm					
Number of RF Buckets	30					
Typical Bunch Mode	25					
Horizontal Damped Emittance (ε_x)	7.5×10^{-8} meter-rad					
Vertical Damped Emittance (ε_y)	1.5×10^{-10} meter-rad					
Power per Horizontal Milliradian (0.25A)	32W					

ARC SOURCE PARAMETERS

Betatron Function (β_x, β_y)	1.0 to 3.8 m, 7.9 to 26.5 m
Dispersion Function (η_x, η'_x)	0.47 to -0.11, -0.39 to 0.22
$\alpha_{x,y} = -\beta'_{x,y}/2$	-0.49 to 1.62, -3.4 to 4.5
$\gamma_{x,y} = (1 + \alpha_{x,y}^2)/\beta_{x,y}$	0.952 to 0.962 m ⁻¹ , 0.81 to 0.52 m ⁻¹
Source Size (σ_x, σ_y)	371 to 612 μm, 27 to 53 μm
Source Divergence (σ'_x, σ'_y)	476 to 324 μrad, 9 to 7 μrad

INSERTION DEVICE PARAMETERS

Betatron Function (β_x, β_y)	1.60 m, 0.35 m
Source Size (σ_x, σ_y)	300 μm, 6 μm
Source Divergence (σ'_x, σ'_y)	260 μrad, 35 μrad